

the Bermuda reefs. He found only evidences of elevation, and came to the conclusion that coral reefs could be formed wherever the fundamental conditions for the existence of the polyps were satisfied, and a firm basis of support was present; and it was quite indifferent whether the basis was a submerged coast, a submarine plateau of elevation, or a submarine volcano. Sir John Murray arrived at similar conclusions (*Proc. Roy. Soc. Edin.*, 1880). He does not accept the hypothesis that the atolls and barrier reefs of the Pacific Ocean are built upon a submerged continent, but believes the coral polyps settle upon isolated volcanoes which still are partly above the water, but have been in some parts abraded to the limit of the mechanical activity of the waves; and he correlates the different forms of the reefs with conditions of nourishment and processes of erosion and corrosion. Murray's explanation of lagoon reefs is that on the windward side the existence of the coral colonies is more prosperous, and the reef grows more quickly than on the leeward side, whose position is less advantageous for the constant renewal of food supplies. The polyps on that side die, and the reef passes through processes of decay; the excavation of the saucer-shaped lagoon is due to the corrosion of the reef limestone by sea-water strongly impregnated with carbonic acid, and also to the erosive activity of the high tides.

Another important point in which Murray differs from the results attained by Darwin and Dana is the thickness of coral reefs. He shows from numerous soundings taken along the outer edge of atolls and barriers, that the reef-wall is precipitous only to a depth of about 200 feet; below that there is a talus slope occupied by broken blocks of coral limestone to depths of about 1000 feet; and fragments of volcanic material begin to occur at still greater depths.

In the Salomon Isles Guppy found older coral reefs that had been elevated to heights of more than 900 feet, but the reefs were not more than 130 feet thick.

In general, it may be said that most scientific authorities on coral reefs at the present day no longer accept Darwin's theory of widespread subsidence as applicable to the American and Australian reefs, or to those of the Red Sea. On the other hand, subsidence seems to be the most satisfactory explanation of many atolls in the Pacific Ocean. Clearly the critical test for subsidence is the thickness of a reef. The borings undertaken at the Ellice Isles, under the guidance of Professor Sollas